

## SINK CLIP

### TECHNICAL FIELD

[0001] The present invention relates to counter top mounting clips and more particularly, to counter top mounting fasteners for over-the-counter sinks.

### BACKGROUND INFORMATION

[0002] There are several known methods of securing a sink to a counter top depending upon the circumstances, where the sink is to be mounted, and the type of sink, for example, an over-the-counter or under-the-counter sink. Traditionally, over-the-counter sinks 10, Fig. 1, are secured to the counter top 12 using a mounting clip 14 which is disposed within a channel 22 in a lip portion 24 of the sink 10. The mounting clip 14 generally includes a threaded fastener 16 having a head portion 18 and a counter top engaging portion 20. The head portion 18 is generally sized to fit within the channel 22 disposed along the lip portion 24 of the sink 10.

[0003] To mount the sink 10 to the counter top 12, the user first places the sink 10 within an opening 26 in the counter top 12. Next, the user inserts the head portion 18 of one or more clips 14 within the channel 22. The counter top engagement section portion 20 includes a tip portion 28 which engages the

bottom surface 30 of the counter top 12. The user secures the sink 10 to the counter top 12 by then rotating the threaded aperture 16 until the counter top engagement portion 28 and in particular the tip 28 is tight and the sink 10 is secure.

**[0004]** The known method of securing an over-the-counter sink 10 to a counter top 12 suffers from several limitations. For example, the mounting clips 14 must be inserted into the channel 22 once the sink 10 has been placed within the aperture 26 in the counter 12. This can be difficult especially when the channel 22 is in a difficult place to reach, for example along a back wall.

**[0005]** Another problem with the known method results from the variations among the thickness of the counter top 12. For example, referring specifically to Figure 2, when the depth D of the counter top 12 is larger than the distance A between the clip engagement tip 28 and the lip 24 of the sink 10, a cavity 32 must be drilled into the counter top 12 prior to placing the sink 10 within the aperture 26 in the counter top 12. This greatly increases the amount of labor necessary to install the sink 10 because it adds additional steps to the mounting process. Additionally, drilling the cavities 32 can be difficult especially depending upon the type of material which the counter top 12 is made from and the circumstances of the installation, for example the location and proximity of walls,

pipes, electrical lines, equipment, etc. Also, the cavities 32 must be created prior to installing the sink 10 and the user must align the clips into the cavity 32 which can be difficult especially in tight places. Furthermore, the counter top 12 may not be large enough to drill into and create the cavities 32.

[0006] Accordingly, what is needed is a sink clip that can be attached to the sink prior to installing the sink within the opening of the counter top. Additionally, the clip should work with a wide variety of counter top thicknesses and should not require drilling cavities into the counter top.

#### SUMMARY

[0007] The present invention features a mounting device used for mounting a sink within an opening in a countertop having at least one side. The mount includes a body portion and a flexible sink engagement portion. The body portion is adapted to be secured to the sink. According to one embodiment, the body portion is molded, glued, welded, an integral part thereof, or otherwise secured to the sink in any way known to those skilled in the art.

[0008] Alternatively, the body portion may include a channel engagement section disposed proximate a second end of the body portion. The channel engagement section preferably includes a substantially horizontal portion secured to the second end of

the body portion and a substantially vertical portion disposed proximate an end of the substantially horizontal portion. The substantially horizontal and vertical portion are sized and shaped to engage an outside surface of a channel on the countertop.

**[0009]** The flexible sink engagement section includes a first section and a second section. The first section is disposed proximate a first end of the body portion at an angle A1 relative to the body portion. The second portion is disposed at an angle A2 relative to the first section and includes a tip adapted to engage the side of the countertop opening. When the sink is inserted within the countertop opening, the angles A1 and A2 are reduced and the tip digs into or otherwise prevents the sink from being removed. Angles A1 and A2 are preferably between about 30 and about 60, preferably 45 degrees and between about 15 and about 30, preferably 22 degrees respectively.

**[0010]** The mount may optionally include a fastener having a head disposed proximate a first end and a threaded region. The head of the fastener is sized and shaped to fit within the channel on the countertop. The fastener may threadably engage an aperture within the substantially horizontal portion. Alternatively, the fastener further includes a nut wherein the fastener threadably engages the nut. The fastener may also

include a slot disposed proximate a second end for rotating the fastener.

[0011] The flexible sink engagement section may also include a substantially horizontal section having a second aperture adapted to accept the fastener and a first end disposed proximate the first end of the body portion. The first section of the flexible engagement section is disposed proximate a second end of the substantially horizontal section at the angle  $A_1$  relative to the body portion.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0012] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawings wherein:

[0013] Figure 1 is a side view of one embodiment of the prior art;

[0014] Figure 2 is a side view of another embodiment of the prior art;

[0015] Figure 3 is a side view of one embodiment of the mounting device according to the present invention;

[0016] Figure 4 is a side view of the embodiment shown in FIG. 3 of the present invention in combination with a sink and a counter top;

[0017] Figure 5 is a side view of another embodiment of the present invention;

[0018] Figure 6 is a side view of the embodiment shown in Figure 5 of the present invention in combination with a sink and a counter top; and

[0019] Figure 7 is a side view of yet another embodiment according to the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] The mounting device 40, Figs. 3, 4, and 7, according to the present invention, is used to secure a sink 10, preferably an over-the-counter sink, to a counter top 12. The clip 40 includes a body 42, a flexible sink engagement portion 44, and a fastener 46.

[0021] According to one embodiment, the body 42 includes a channel engagement section 48 which is sized and shaped to engage the outside surface 50 of a channel 22 disposed on the lip 24 of the sink 10. The body 42 also preferably includes a first and second aperture 52, 54 which is sized and shaped to accept the fastener 46. In the preferred embodiment, one or more of the apertures 52 and 54 are threaded so as to engage the fastener 46. Alternatively, a nut 74 may be provided to engage the fastener 46 as will be described in greater detail hereinbelow.

[0022] The apertures 52 and 54 are preferably located in a first and second fastener region 56, 58 disposed at an angle, preferably about 90 degrees, relative to a longitudinal portion 60. In the preferred embodiment, the channel engagement section 48 also includes a generally vertical portion 62 which engages an outside surface 50 of the channel 22 to prevent the mount 40 from rotating as shown in FIG. 4 and described in greater detail hereinbelow.

[0023] The flexible sink engagement portion 44 includes a biasing region 64 disposed at an angle A1 relative to the body 42 and a tip portion 66 disposed at an angle A2 relative to the biasing region 64. According to the preferred embodiment, the angle A1 is between about 30 to approximately 60, preferably about 45°. The angle A2 is between about 15 to approximately 30, preferably about 22°. The tip portion 66 preferably includes a tip 68 which may include either a blunt or a sharpened tip region designed to engage the side 78 of the opening 26 in the counter top 12.

[0024] The fastener 46 preferably includes a head 70 a shaft 72 and optionally a nut 74. The head 70 is sized and shaped to fit within the channel 22 on the sink 10 and may be a round head, a squared head, a hexagonal head, or any other shape known to those skilled in the art. Depending on the method to tighten the fastener 46, the head 70 may be sized and shaped to prevent

the fastener 46 from rotating or alternatively to allow the fastener 46 to rotate and is within the knowledge of one of ordinary skill in the art.

[0025] The shaft 72 preferably includes a threaded portion for engaging either the first and/or second aperture 52, 54 (in the embodiment wherein the apertures 52, 54 are threaded) or the nut 74. The shaft 72 may optionally include a slot 76 or other means disposed on the end of the shaft 72 to allow the fastener 46 to be rotated and to tighten the body 42 relative to the channel 22 as will be described in greater detail hereinbelow.

[0026] Referring specifically to figure 4, to install the sink 10 within the opening 26 in the counter top 12, the user first inserts the head 70 of the fastener 46 of one or more mounts 40 within the channel 22 on the lip 24 of the counter top 12. To prevent the mounts 40 from moving prior to installing the sink 10, the vertical portion 62 of the channel engagement section 48 is preferably proximate the outside surface 50 of the channel 22 and the first fastener region 56 is preferably proximate the bottom of the channel 22. Next, the user tightens the fastener 46 which moves the first fastener region 56 into contact with the channel 22. According to one embodiment, the user tightens the fastener 46 by rotating the nut 74 which threadably engages the shaft 72 causing the body portion 42 to be drawn closer to the bottom of the channel 22.



Alternatively, the user may rotate the shaft 72 of the fastener 46 using the slot 76.

**[0027]** Once the mounts 40 are secure within the channel 22, the user then simply inserts the sink 10 within the opening 26 in the counter top 12. As the sink is inserted within the opening 26, the tip 68 of the flexible sink engagement portion 44 contacts the sides 78 of the counter top 12, thus bending the flexible sink engagement portion 44 and reducing the angles A1 and A2. Once in place, the tip 68 directly engages the sides 78 of the counter top, and preferably digs into the sides 78 thus preventing the sink 10 from being removed from the opening 26 and the counter top 12. Caulking and/or other sealants may also be used as is well known to those skilled in the art.

**[0028]** Securing the mounts 40 to the sink 10 prior to installing the sink 10 within opening 26 in the counter top 12 greatly simplifies the installation process because it is much easier to secure the mounts 40 to the sink 10 while the sink 10 is not in the opening 26 in the counter top 12. Additionally one skilled in the art will recognize that the mounts 40 according to the present invention will work with a wide variety of counter top 12 thickness, and thus do not require drilling cavities in the counter top 12.

**[0029]** According to another embodiment, the mount 140, Figs. 5 and 6, includes a longitudinal portion 60 which is adapted to

be secured directly to the sink 10. The mount 140 includes a biasing region 64 disposed at an angle A1 relative to the longitudinal portion 60 and a tip portion 66 disposed at an angle A2 relative to a biasing region 44 as previously described. According to this embodiment, the longitudinal portion 60 may be secured to the sink 10 using one or more fasteners 80 such as screws, rivets or bolts. Alternatively, the longitudinal portion 60 may be molded integrally into the sink 10 or secured to the sink 10 using an adhesive or otherwise secured to the sink 10 by any means known to those skilled in the art.

**[0030]** Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention, which is not to be limited except by the following claims.